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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/508,788
Filing Date: September 23, 2004
Appellant(s): MASUMURA ET AL.

Aldo A. D'Ottavio
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 31, 2009 appealing from the Office action mailed November 18, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Item 1, "Whether claims 17-26, 34-44, and 46-51 are unpatentable under 35 USC § 112 second paragraph, as being indefinite" is no longer pertinent in view of the amendment and remarks entered on February 25, 2009.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,610,766	Kitamura	8-2003
6,103,805	Kojima	8-2000
5,852,135	Kanai	12-1998
4,536,536	Kavesh	8-1985
EP1083347	Matsumoto	7-2000

Askeland, Donald R. "The Science And Engineering of Materials," PWS Publishing Company, Copyright 1994, pp. 540-543

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 17-26, 34-43 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al, EP 1083347 A2, in view of Askeland and further in view of Kavesh, USP 4,536,536.

Matsumoto discloses a belt for a ball chain comprising;

- a tape (21, Figure 7 and 8) of synthetic resin (C2/L52-53)

- extending along longitudinal edges and integral with the tape a stretched fibrous member (23, C7/L38-55) of thermoplastic resin (Matsumoto discloses synthetic resin C7/L38-55) that are positioned inwardly of the corresponding edge (Figure 8 shows that stretched member 23 is inward of the edge of the belt)
- ball insetting holes (20) spaced at equal intervals along a straight line (spaced apart by projections 22) between the longitudinal edges
- projections (22) disposed around the holes
- both resins are substantially identical resins by virtue of comprising principal components of identical resins (both resins can have carbon)

Matsumoto does not disclose that the fibers are oriented longitudinally along said stretched fibrous member.

Askeland teaches that orienting fibers/molecular chains (a fiber is made of a molecular chain) in a direction parallel to the force being applied, which is the longitudinal direction, to the belt body provides a greater tensile strength (pages 540-543, in particular Figure 16-12).

It would have been obvious to one of ordinary skill in the art to use fibers/molecular chains oriented in a direction longitudinal along the stretched fibrous member in Matsumoto to increase the tensile strength of the overall device as taught by Askeland. Using a known technique to improve the tensile strength of Matsumoto would have been obvious to one of ordinary skill.

Matsumoto in view of Askeland as applied above does not disclose that the stretched fibrous member is obtained by stretching a yet-unstretched fibrous member to obtain a substantially higher tensile strength.

Kavesh teaches that it is known to stretch a yet-unstretched fibrous member to obtain a member with greater tensile strength, modulus, toughness, dimensional and hydrolytic stability and high resistance to creep under sustained loads (C2/L60-63). Application of these stretched fibers is also disclosed to be reinforcements in thermoplastics, thermosetting resins and power transmission belts (C3/L15-20).

Using a stretched fibrous member obtained from stretching a yet-unstretched member would have been obvious to one of ordinary skill in the art since using a known technique to improve a similar device in the same way is obvious.

Claims 44 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al, EP 1083347 A2, in view of Askeland and Kavesh, USP 4,536,536, as applied above and further in view of Kanai, USP 5,852,135.

Matsumoto in view of Askeland and Kavesh discloses all of the claimed subject matter above.

Matsumoto in view of Askeland and Kavesh does not disclose that the fibrous member and the belt comprise a polyester elastomer.

Kanai teaches that the elastomers used in the system are polyester elastomers (C6/L13-35) for the purpose of improve weld strength and elongation and/or impact resistance of the resin being used (C3/L5-15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Matsumoto in view of Askeland and Kavesh and provide the fibrous member and the belt to be made of polyester elastomer, as taught by Kanai, for the purpose of improve weld strength and elongation and/or impact resistance of the resin.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al, EP 1083347 A2, in view of Askeland and Kavesh, USP 4,536,536, as applied above, and further in view of Kojima, USP 6,103,805.

Matsumoto in view of Askeland and Kavesh discloses all of the claimed subject matter above.

Matsumoto in view of Askeland and Kavesh does not disclose that the belt and fibers are made of 6/66 copolymer nylon.

Kojima teaches making a resin out of a nylon 6 copolymer, one of which is nylon 6/66 (C2/L53), for the purpose of improve weld strength, flexural modulus and heat resistance (C1/L57-62).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Matsumoto in view of Askeland and Kavesh and provide the fibrous member and the belt to be made with a 6/66 copolymer nylon, as taught by Kojima, for the purpose of improving weld strength, flexural modulus and heat resistance.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al, EP 1083347 A2, in view of Askeland in view of Kavesh, USP 4,536,536, as applied above and further in view of Kitamura, USP 6,610,766.

Matsumoto in view of Askeland and Kavesh discloses all of the claimed subject matter above.

Matsumoto in view of Askeland and Kavesh does not disclose that the belt and fibers are made of polyvinylidene fluoride.

Kitamura teaches making a resin out of a polyvinylidene fluoride resin (see whole document) for the purpose of providing a belt or transfer member which is semiconductive (can transfer electric charge (C6/L15-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Matsumoto in view of Askeland and Kavesh and provide the fibrous member and the belt to be made with a polyvinylidene fluoride resin, as taught by Kitamura, for the purpose of providing a belt or transfer member which is semiconductive in nature.

Double Patenting

Claim 48 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 44. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

(10) Response to Argument

The Appellant argues, with regards to claims 17, 34 and 51, that Matsumoto does not disclose that both resins are "substantially identical resins" based on the classification of resins.

Matsumoto discloses:

A. That the belt can be a synthetic resin (see paragraph 0012)

B. That the reinforcing member can be a synthetic resin (see paragraph 0034)

C. That both resins of the belt and reinforcing member can accept carbon filler as an additive (see paragraph 0013 and 0034)

D. That a type of synthetic resin is polyester elastomer (see paragraph 0024, which is a thermoplastic as discussed in the instant application on, see comparative examples using PEE MFR10 in Table 1, also a synthetic resin is made by heating, mixing and cooling of plastics to make a new plastic, the heating and cooling of the plastic results in a thermoplastic)

However, it is disclosed in Matsumoto that both the components can be synthetic resins, both resins belong to the same classification of "synthetic resin" and are thus substantially identical within the meaning of the claim.

Since both resins share the common property of being able to accept carbon filler they are further “substantially identical” based on the physical characteristic of the carbon filler. The claim does not set forth any limitation that suggests or limits the claim to a particular meaning of "substantially identical”, nor does the specification define the

phrase "substantially identical" to relate to a particular classification. Furthermore, one of ordinary skill in the art would turn to the disclosure of Matsumoto and select the reinforcement fiber resin to be a polyester elastomer which results in identical resins or identical resins as principal components (claims 34 and 51).

Therefore, Matsumoto discloses a belt and a reinforcement member which are both made of “substantially identical” resins since both resins can be made of synthetic resin and can accept a carbon filler as an additive.

The Appellant argues, with regards to claim 17, that Askeland does not disclose molecular chains orientated in the same direction.

However, Askeland, as stated in the Final Office action of November 11, 2008, discloses a fiber which is a molecular chain as broadly defined; and a resin is made of a number of fiber/molecular chains, these facts are undisputed by the Appellant. Askeland discloses that arranging fibers/molecular chains in relation to the force being applied can change effect the tensile strength of the fibers (see Figure 16-12 and section titled “Orientation of Fibers). In particular, Askeland discloses in Figure 16-12 that when the fibers are arranged longitudinally to the applied force, in the case of a belt this would be along the length of the belt, they exhibit the greatest amount of tensile strength. In view of Askeland one of ordinary skill in the art would indeed orient the fibers/molecular chains of a resin matrix longitudinally in the direction of the applied force to increase the overall strength of the belt.

The Appellant argues, with regards to claim 17, that Kavesh does not suggest that a fiber reinforced through stretching is effective as a reinforcing member in a matrix of substantially identical resins.

Kavesh is not being relied upon for the disclosure of any particular material. Kavesh is being relied upon for the showing that it is known to one of ordinary skill in the art that stretching a fiber provides a fiber with a greater tensile strength, modulus, toughness, dimensional and hydrolytic stability and high resistance to creep under sustained loads (see column 2/ lines 60-63). In view of this teaching of Kavesh, one of ordinary skill in the art would turn to any fiber member, including that of Matsumoto, and subject it to a pre-stretching (also known as preloading) in order to improve the physical characteristics of the fiber. This would result in the predictable result of improved belt structure and strength.

Appellant does not separately argue the limitations found in claims 44, 46, 47 and 48 nor the rejections of these claims as set forth above.

Matsumoto, Askeland and Kavesh render obvious the claim limitations as set forth in independent claim 17. Matsumoto discloses the belt with a reinforcing member and both of the members can be made of "substantially identical' resins. Askeland teaches that orientation of members along the direction of the applied force can improve the tensile strength of the member and Kavesh teaches that it is known that pre-stretching a fiber member can also increase the strength of the fiber. The combination

of Matsumoto, Askeland and Kavesh would result in a belt having improved strength characteristics and meets the limitations of at least claim 17 of the instant application.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/JAMES PILKINGTON/

Examiner, Art Unit 3656

Conferees:

/Thomas R. Hannon/
Primary Examiner, Art Unit 3656

Marc Jimenez /MJ/